1. **ERMA 8330/8336**  
   Non-parametric Data Analysis in Educational Research  
   3 Credit Semester Hours  
   Prerequisite: None  
   Co-requisite: None

2. **Date of Initial Preparation:** February 2008  
   **Date Initial Request Reviewed:** February 28, 2008  
   **Updated:** August, 2008  
   Meeting Time: Asynchronous Delivery via Blackboard  
   Instructor: Margaret E. Ross  
   4018 Haley Center  
   (334) 844-3084 rossma1@mail.auburn.edu (the first 1 = one)  
   Office Hours: Students may schedule an on-site visit, phone call, or e-mail discussion  
   by contacting me via course e-mail. Please, allow 24 hours for mail sent during the  
   school week, 48 hours for mail sent during weekends.

3. **Texts**  

4. **Course Description**  
   Via asynchronous delivery of 10 content modules, this course is designed to provide students the understanding of nonparametric statistical methods pertaining to design and analysis in educational research. Parametric statistics will be reviewed and parallel nonparametric statistics will be compared to the characteristics and uses of the parametric statistics. This course emphasizes the conceptual understanding and application as well as calculations of nonparametric statistics.

5. **Course Objectives**  
   Students will:  
   1. Gain an understanding of nonparametric statistical procedures.  
   2. Apply knowledge of nonparametric statistics by analyzing research problems and making decisions about the appropriate use of nonparametric procedures.  
   3. Apply knowledge of nonparametric statistics using SPSS and/or hand calculations to determine significance.  
   4. Apply knowledge of inferential statistics by interpreting results of statistical analyses.  
   5. Interpret the results of the analyses in terms of the research hypothesis.
6. Tentative Course Content and Schedule

Course content is laid out in the modules that are taught over the 15 week semester.

Module 1
Introduction to the Course/ Overview of Nonparametric Uses
Research interests
Review of Parametric Concepts

Module 2
One sample nonparametric tests for nominal or categorical data
Comparison to parametric procedures
Assignment/Assessment Notebook

Module 3
Quiz
Related two-sample nonparametric tests for nominal or categorical data
Comparison to parametric procedures
Assignment/Assessment Notebook

Module 4
Independent two-sample nonparametric tests for nominal or categorical data
Comparison to parametric procedures
Assignment/Assessment Notebook

Module 5
Related k-sample nonparametric tests for nominal or categorical data
Comparison to parametric procedures
Assignment/Assessment Notebook

Module 6
Quiz
One sample tests for ordinal and interval data
Comparison to parametric procedures
Assignment/Assessment Notebook

Module 7
Related two-sample nonparametric tests for ordinal and interval data
Comparison to parametric procedures
Assignment/Assessment Notebook

Module 8
Independent two-sample nonparametric tests for ordinal and interval data
Comparison to parametric procedures
Assignment/Assessment Notebook

Module 9
Independent k-sample nonparametric tests for ordinal data
Comparison to parametric procedures
Assignment/Assessment Notebook
Module 10
Measures of Association
Comparison to parametric procedures
Assignment/Assessment Notebook

7. Course Requirements/Evaluation

Learning Methods

On-line lectures, readings, module exercises and assignments.

You will contract for a grade of A or B. For an A you must earn 90% to 100% of points (see grading scale below) and complete all components listed under the A grading scale. If you earn less than 90% to 100% on assessment components (see below for assessment components) you will earn the grade indicated by the percent earned.

Grading Scale for A
A: 90 - 100%
B: 80 - 89%
C: 70 - 79%
D: 60 - 69%
F: below 60%

Student Assessment components for a grade of A
Assignment/Assessment Notebook 15% total, distributed as indicated below:
  Hand Calculations from module projects 5%
  Article Summaries (hypothesis, variables, analysis, how question answered) 5%
  Presentation lesson notes or outline 5%
  Quizzes 60%
  Video Presentation 15%
  Research Proposal* 10%

If you choose to contract for a B you will need to complete all components listed below, earn at least 80% of points, be absent or late no more than three modulees and complete all components listed under the B grading scale. If you earn less than 80% on assessment components (see below for assessment components) you will earn the grade indicated by the percent earned. The assessment components needed to earn a grade of B does not include a final project and a higher percent is attached to hand calculations and to article summaries completed throughout the module.

Grading Scale for B
A: 90 - 100%
B: 80 - 89%
C: 70 - 79%
D: 60 - 69%
F: below 60%
Student Assessment components for a grade of B
Assignment/Assessment Notebook 25% total, distributed as indicated below:
Hand Calculations from module projects 10%
Article Summaries (hypothesis, variables, analysis, how question answered) 10%
Presentation lesson notes or outline 5%
Quizzes 60%
Video Presentation 15%

Notebook: The notebook will be graded based on completeness. It should contain (1) handouts for all modules, (2) module calculations, (3) module lab output, and (4) articles with summaries. Summaries are to include the hypothesis/research question addressed, the variables in the analysis, the independent and dependent variables, and why the particular analysis was used (appropriateness for answering the research question).

Sometimes the lab will double as an assignment and must be turned in at the completion of the module. In this case, you will need to have the output printed. You can work in pairs on lab assignments and turn in one lab assignment per pair if you wish.

*Proposal and Presentations
The following is the outline that will be used for this assignment. You will present the research via a Powerpoint presentation and submit your accompanying paper (5-7 pages).

Introduction (no more than 1 to 1 ½ pages)
A. Statement of Problem
B. Significance of problem (based on literature review)
Specific research questions to be answered or hypotheses to be tested.
   1. Are they clearly stated?
   Are they feasible/legitimate?
Reducing it will lend itself to t-test or ANOVA procedures?

Methodology
A. Full description of participants
B. Measures
C. Procedures (detailed description of what you did - step by step)
D. Data processing and analysis (how will you analyze the data and why)?

Results - If you don't have data, make it up.
A. Are all appropriate statistics clearly stated in APA style?
B. Are tables or graphs appropriately used?

Discussion (no more than 1 page)
A. Results in words
B. Limitations discussed

A more detailed rubric will be handed out closer to the time the proposal and presentation are due.
The paper is to be written in APA style.
8. **Course Policy Statements**

** indicates policy statements in accordance with Auburn University College of Education Requirements

A. This course makes the assumption that you are able to work independently. There are no required face-to-face meetings. There are no required synchronous online meetings. However, feel free to email or arrange a chat with your instructor any time.

B. Make-up tests will be given only for University-approved excuses as outlined in the Tiger Cub (p.74). Arrangements to take a make up test must be made in advance. Students who do not make such arrangements will not be able to make up the test.

C. Late Assignments Policy: Assignments turned in late will receive a 3% reduction in earned points per day. The only exception will be in the case of emergency. Except for work requiring calculations, all work must be typed or it will not be graded. Late penalty will be applied to work completed in writing and then turned in late in typed format for a grade.

D. All portions of the Auburn University Honesty Code found in the Tiger Cub (Title XII) will apply in this class. All data sets and analyses designed for the individual student must be completed alone and not in consultation with anyone else. Collaboration and consultation are permitted and encouraged for exercises in class. If a student is unclear about whether collaboration is or is not allowed on an assignment, he/she should consult the instructor.

E. An important skill for teachers is the ability to communicate effectively with a wide variety of people. Parents, administrators, students and peers all participate in the communication process with teachers. As such, future teachers should begin to master the art of effective and appropriate communication skills. The instructors are aware that many students utilize shorthand methods of communication with peers that are associated with text message software and hardware. However, this type of communication is not appropriate in a professional setting, such as with instructors and professors. Therefore, the instructors expect students to use standard forms of grammar, punctuation and spelling when using email to inquire about course-related activities or problems.

F. All assignments are due by MIDNIGHT (Central Standard Time) on the dates listed. Please note: Time stamps will be according to the university server. If your computer is set to a different time than the server is, you may want to make a note of this and plan accordingly. Please do not forget Mr. Murphy and his law, either. If you are counting on being able to submit an assignment "in the nick of time," the chances of Murphy's law being put into play are quite high. I suggest that you allow a generous cushion of time when submitting assignments, just in case something goes wrong and you need some time to troubleshoot the problem.

G. This course is heavily supported through the use of Blackboard, a Web-based tool for material delivery and communication. Each student automatically has
access to the course site through the registration process. It is the student's responsibility to access the site on a regular basis to check email, announcements, and to access handouts or other information for the class. Additionally, students are encouraged to make use of the chat room feature for conferencing needed in order to clarify assignments. Students are expected to try to solve their own technological problems through trouble shooting and contacting Auburn University Help Desk personnel prior to contacting the instructor. When communicating with help desk personnel, please record the name of the person helping you, the time that you called, and the difficulty you were reporting. If the instructor needs to follow up on any issues, this information will be helpful in tracking down the correct solution.

H. Quiz Proctor Process: Students must select a proctor to supervise their quizzes. Students must obtain the consent of an approved proctor and have the proctor complete the Examination Proctor Form. The form must be signed by the proctor and returned to your instructor at least ten days prior to the examination date. Approved proctors are academic administrators in the student’s locale. Examples are city and county school superintendents, college or university academic deans or department heads, principals of accredited senior high schools, an education officer at a military installation, or another independent learning office test supervisor at a college or university. Without exception, only persons in these positions are approved to supervise examinations. All proposed proctors are verified for appropriateness by the instructor. Quizzes are administered under the same circumstances as they would be on campus, e.g., closed book, no notes, and completed within one hour, except in special cases where legitimate disabilities are present. Quizzes are sent directly to the proctor only after the instructor has received and approved the completed Examination Proctor Form. It is the student’s responsibility to contact the proctor and arrange to take the quiz within the deadline time frame.

I. Incompletes and Withdrawals: Grades associated with incomplete course work or withdrawal from class will be assigned in strict conformity to University policy (see Auburn University Bulletin). If you wish to drop this course you may do so by the 10th module day with no grade assignment. From the 10th module day to mid-quarter a W (withdrawn-passing) grade will be recorded in your transcripts. After this period withdrawal from the course will only be granted under unusual circumstances and must be approved by the Dean of the College of Education.

J. Academic Misconduct: The Department of EFLT recognizes university policy regarding academic misconduct. Violations include, but are not limited to: plagiarism, unauthorized assistance during examinations, submitting another's work product as your own, using another's words as your own without appropriate citation, sharing unauthorized materials with another that contain questions or answers to examinations, altering or attempting to alter assigned grades. In accordance with University policy regarding academic misconduct, students may be subject to several sanctions upon violations of the Student Academic Honesty Code. See the Tiger Cub publication for the current year for specifics regarding academic misconduct as well as student's rights and responsibilities associated with the Code.
K.** Disability Accommodations: Students who need accommodations are asked to arrange a meeting with me the first week of class, as soon as possible if accommodations are needed immediately. If you have a conflict with my office hours, an alternate time can be arranged. To set up this meeting, please contact me by e-mail. Bring a copy of your Accommodation Memo and an Instructor Verification Form to the meeting. If you do not have an Accommodation Memo but need accommodations, make an appointment with The Program for Students with Disabilities, 1244 Haley Center, 844-2096.

L.** Honesty Code: The University Academic Honesty Code and the Tiger Cub Rules and Regulations pertaining to Cheating will apply to this class.

M.** Professionalism: As faculty, staff, and students interact in professional settings, they are expected to demonstrate professional behaviors as defined in the college’s conceptual framework. These professional commitments or dispositions are listed below:

- Engage in responsible and ethical professional practices
- Contribute to collaborative learning communities
- Demonstrate a commitment to diversity
- Model and nurture intellectual vitality

9. Justification for Graduate Credit

The on-site version of the course (ERMA 8330) is a doctoral level course offered in a series of ERMA quantitative research design courses (ERMA 7300, ERMA 7310, ERMA 8320, ERMA 8340) with progressively in-depth content. The first three of these five courses are 7000 (master’s or doctoral level), and the last two (including ERMA 8330, Nonparametric Data Analysis in Educational Research) are 8000 level designed for advanced students. ERMA 8336 is to be an on-line version of ERMA 8330. The following justification was given for graduate status for the ERMA 8330 at the time of the semester transition and applies, also, to ERMA 8336:

This course covers a portion of the statistical world which is less often studied and utilized in the current literature than t-tests, ANOVA, and other parametric procedures. Yet these procedures are often more appropriate for analyses in education given the nature of the data with which researchers work. The course will appeal only to those who are interested in exploring all the alternatives available for analysis of data in education.